Appl. No. 10/631,799
Response dated October 6, 2006
Reply to Final Office Action of July 21, 2006

Remarks/Arguments

1.   Claims 1-32 are pending and stand rejected on varying grounds under §103(a).

Claim 1 has been amended to include all features of original claims 2, 3, 4, and 6. Claims 2, 3, 4, and 6 have been cancelled. Claims 5, 7, and 9 have been amended to change the dependency in view of the aforementioned cancelled claims. .

Claim 13 has been amended to include all features of original claims 14 and 16. Claims 14 and 16 have been cancelled. Claims 15 and 17 have been amended to change the dependency in view of the aforementioned cancelled claims.

Claim 21 has been amended to include all features of original claims 22 and 23. Claims 22 and 23 have been canceled. Claim 24 has been amended to change the dependency in view of the aforementioned cancelled claims.

Claim 26 has been amended to include all features of original claims 27 and 28. Claims 27 and 28 have been cancelled. Claim has been amended to change the dependency in view of the aforementioned cancelled claims.

In view of the comments below, Applicant respectfully requests that the above noted amendments to the claims be entered, respectfully submits that all rejections of the remaining pending claims have been traversed, and requests that the Examiner reconsider the present application including claims 1, 5, 7-13, 15, 17-21, 24-26 and 29-32 and withdraw the rejection of these claims.

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2.   On October 4, 2006 a telephonic interview was conducted with the Inventor, Dr. Kelley,

Applicant's representative, the undersigned, and Examiner Nguyen participating. Various claims

as well as the Liu and Wang references were discussed. Examiner Nguyen suggested that

additional detail be added to the independent claims to more explicitly define the coefficient

generation process. No agreement was reached.

3.   Claims 1-6, 9, 12-16, 18, 20-22, 25-28, 31-32 stand rejected under 35 U.S.C.

103(a) as being unpatentable over Liu et al (IEEE, "A decorrelating RAKE receiver for COMA

Communication over Frequency-selective Fading Channel", Vol. 47, No.7, July 1999).

Claims 2-4, 6, 14, 16, 22, and 27-28 have been cancelled, thus rendering this rejection of

those claims moot.

Claims 1, 13, 21, and 26 are independent claims with the remaining cited claims

dependent on the closest lowered numbered one of the independent claims. Applicant has

chosen to file this response to the July 21, 2006 Final Office action and amend the various

independent claims to include features of original dependent claims. Since all of these claims

have been searched it is appropriate to enter these amendments after a Final Office action.

Claim 1 as amended includes a coefficient generator to explicitly and definitely determine

filter coefficients where the generator further comprises an inversion processor to provide a

matrix inverse and the inversion processor further uses a recursive architecture to do so.

The Examiner cites Liu as showing all of these features. Applicant respectfully disagrees

as Liu does not explicitly show a) a coefficient generator, or b) show or suggest and in fact

teaches away from a coefficient generator that explicitly and definitely determines filter

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coefficients (according to the present application and Liu the appropriate filter coefficients are determined by Eq 12, however Liu merely estimates these coefficients using the iterative Eq. 11). Furthermore Liu does not show or suggest c) an inversion processor to provide a matrix inverse, or d) an inversion processor that uses a recursive architecture to provide the matrix inverse (While Liu shows an equation having a matrix inverse, nothing in Liu speaks to finding a matrix inverse and certainly not doing so using a recursive architecture). Thus it is clear that the features of claim 1 or all remaining pending claims that are dependent on claim 1 are not taught or suggested by the Liu reference and thus these claims are allowable over this reference.

Claim 13 as amended recites determining precisely and directly filter coefficients where the determining comprises providing a matrix inverse by using a recursive process to do so, all as claimed.

Again the Examiner mistakenly cites Liu as showing all claimed features. Applicant respectfully submits that Liu does not show or suggest and in fact teaches away from a) determining coefficients precisely and directly or b) providing a matrix inverse or c) doing so using a recursive process (again Liu merely estimates the coefficients and does not perform a matrix inversion and clearly does not do so using a recursive process). Thus it is clear the features of claim 13 or all remaining pending claims that are dependent on claim 13 are not taught or suggested by the Liu reference and thus these claims are allowable over this reference.

Claim 21 recites computing explicitly with a predetermined number of computations filter coefficients where the computing provides a matrix inverse using a recursive process to do

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so and further where the recursive process repeatedly uses a Levinson Durbin algorithm to facilitate formulating the matrix inverse all as claimed.

The Examiner maintains that Liu shows or suggests all of these features other than the Levinson Durbin algorithm but maintains that Wang shows this feature. Applicant respectfully submits that Liu does not show or suggest a) explicitly computing filter coefficients with a predetermined number of computations (Liu merely estimates coefficients) or b) providing a matrix inverse or c) doing so using a recursive process. Furthermore, Wang while mentioning Levinson Durbin does not use the algorithm to facilitate forming a matrix inverse as claimed. Thus it is clear the features of claim 21 or all remaining pending claims that are dependent on claim 21 are not taught or suggested by the Liu reference or any combination of the Liu reference and the Wang reference and thus these claims are allowable over these references.

Claim 26 recites a coefficient generator to explicitly and definitely determine filter coefficients where the generator further comprises an inversion processor to provide a matrix inverse and where the inversion processor uses a recursive or pipelined architecture all as claimed.

The Examiner maintains that Liu shows or suggests all claimed features. Applicant disagrees and respectfully suggests as noted above that Liu merely estimates coefficients rather explicitly and definitely determining such coefficients and clearly does not show or suggest an inversion processor using either a recursive or pipelined architecture. Thus claim 26 and all remaining claims dependent on claim 26 are allowable over this reference.

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Therefore and in view of the above discussions, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1, 5, 9, 12-13, 15, 18, 20-21, 25-26, and 31-32 under 35 U.S.C. 103(a) as being unpatentable over Liu et al (IEEE, "A decorrelating RAKE receiver for COMA Communication over Frequency-selective Fading Channel", Vol. 47, No.7, July 1999).

4.   Claims 7-8, 10-11, 17, 19, 23-24, 29-30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Wang, et al (IEEE, "Adaptive joint multiuser detections and channel estimation in multipath fading CDMA channels" ", Wireless Networks 4, 1998, pages 453-470.

Claim 23 has been canceled with the features of original claim 23 now included in claim 21 and thus this rejection of claim 23 is now moot.

Claims 7-8 and 10-11 are dependent on claim 1, claims 17 and 19 are dependent on claim 13, claims 23-24 are dependent on claim 21, and claims 29-30 are dependent on claim 26. At least by virtue of dependency on a claim that is believed to be allowable, each of the cited claims should also be allowable. Furthermore, nothing in Liu or Wang or the combination thereof shows or suggests a predictive calculator and matrix formulator for formulating a matrix inverse as recited by claims 7, 8, 10, 11, 29, or 30 or analogous functional features as recited by claim 17, 19, 24.

Therefore, in view of one or more of these reasons it is clear that these references taken in any combination do not show or suggest all features of any one of these claims. Thus, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 7-8, 10-
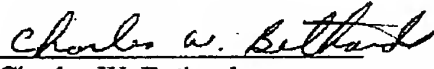
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11, 17, 19, 24, 29-30 under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Wang, et

al (IEEE, "Adaptive joint multiuser detections and channel estimation in multipath fading

CDMA channels" ", Wireless Networks 4, 1998, pages 453-470.

Accordingly, Applicant respectfully submits that the claims, as amended, clearly and

patentably distinguish over the cited references of record and as such are to be deemed allowable.

Such allowance is hereby earnestly and respectfully solicited at an early date. If the Examiner

has any suggestions or comments or questions, calls are welcomed at the phone number below.

Although it is not anticipated that any fees are due or payable, the Commissioner is

hereby authorized to charge any fees that may be required or credit any overpayments to Deposit

Account No. 50-3435.

Respectfully submitted,

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